

The effect of a nucleonic isobar ...

S/707/62/005/000/013/014
D290/D308

4.5 Bev prevent any conclusion being drawn about the effect of the (0,0) isobar since the results obtained for (0,0) and (1,1) isobars are very similar in this energy range. There are 3 figures and 4 tables.

f

Card 3/3

VINITSKIY, A.Kh.; GOLYAK, I.G.; PAVLOVA, N.P.; RUS'KIN, V.I.; TAKIBAYEV, Zh.S.

Inelastic π -N-interactions at 7.5 Bev. Trudy Inst. iad. fiz.
AN Kazakh. SSR 6:144-159 '63. (MIRA 16:10)

RUS'KIN, V.I.

Allowing for resonance interactions in the statistical theory
of multiple particle formation. Trudy Inst. iad. fiz. AN
Kazakh. SSR 6:3-63 (MIRA 16:10)

RUS'KIN, V.I., kand. fiziko-matem. nauk; VINITSKIY, A.Kh., mladshiy
nauchnyy sotrudnik

Inelastic π -meson-nucleon interactions at an energy of 7.5
Bev. Vest. AN Kazakh. SSR 19 no.4:58-64 Ap '63.

(MIRA 16:5)

(Nuclear reactions)

S/056/63/044/002/006/065
B102/B186

AUTHORS: Vinit'skiy, A. Kh., Golyak, I. G., Rus'kin, V. I.,
Takibayev, Zh. S.

TITLE: Interaction between 7.5-Bev π^- mesons and nucleons, and
their analysis on the basis of pole graphs

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 44,
no. 2, 1963, 424-430

TEXT: Emulsion plates were exposed to the pion beam from the proton-synchrotron of the OIYaI, and from the 2100 πN events recorded 200 elastic interactions were selected and analyzed. Among these there were 46, 56, 45, 29, 11, 10 and 1 events of 2, 3, 4, 5, 6, 7, and 8-pronged stars, respectively. A total of 323 particles were identified, 259 pions, 19 K-mesons and 45 protons. The pion and proton angular and momentum distributions were determined for the c.m.s. The pion angular distribution is asymmetric with a forward peak and the asymmetry decreases with increasing multiplicity. The proton angular distribution has a backward peak, but the asymmetry is independent of the multiplicity. The proton

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Interaction between 7.5-Bev ...

S/056/63/044/002/006/065
B102/B186

momentum distribution has two maxima at 0.4-0.6 Bev/c and at 1.4-1.6 Bev/c. The pions have flat maxima at 0.2-0.4 and 0.6-0.8 Bev/c. The experimental results are analyzed from the standpoint of peripheral interaction applying the Feynman graphs for one-, two- and three-pion systems. The peculiarities observed can be explained by the fact that at least 30 of the stars have only few prongs. The angular correlation between two pions in the case of low multiplicity are also discussed. There are 6 figures and 2 tables.

ASSOCIATION: Institut yadernoy fiziki Akademii nauk Kazakhskoy SSR
(Institute of Nuclear Physics of the Academy of Sciences
Kazakhskaya SSR)

SUBMITTED: July 28, 1962

Card 2/2

VINITSKIY, A.Kh.; GOLYAK, I.G.; RUS'KIN, V.I.; TAKIBAYEV, Zh.S., akademik

Nature of particle production in enelastic pion-nucleon interactions. Dokl.AN SSSR 148 no.4:796-798 P '63.

(MIRA 16:4)

1. Institut yadernoy fiziki AN KazSSR. 2. AN KazSSR (for Takibayev).

(Collisions (Nuclear physics)) (Photography, Particle track)

ACC NR: AP7008887

SOURCE CODE: UR/0367/66/004/004/0872/0874

AUTHOR: Golyak, I. G.; Rus'kin, V. I.--Ruskin, V. I.

ORG: Nuclear Physics Institute, Kazakh Academy of Sciences (Institut yadernoy fiziki AN KazSSR)

TITLE: Are inelastic pion-nucleon interactions at 7.5 gev significantly non-peripheral

SOURCE: Yadernaya fizika, v. 4, no. 4, 1966, 872-874

TOPIC TAGS: inelastic interaction, nucleon interaction, pion

SUB CODE: 20

ABSTRACT: It is shown that taking into account the polarization of nucleon isobars produced in a number of pole processes makes it possible to describe the experimentally observed proton momentum spectrum in the c. m. s. [center-of-mass system].
Orig. art. has: 3 figures, 1 formula and 1 table. [Based on authors' Eng. abst.]
[JPRS: 39,658]

UDC: none

Card 1/1

0929 / 689

L 17881-65 EWT(m) DIAAP/AFWL/SSD

ACCESSION NR: AP4049260

S/0361/64/000/001/0083/0087

AUTHORS: Golyak, I. G.; Rus'kin, V. I.

TITLE: Nucleon-antinucleon scattering¹⁹ at medium energies B

SOURCE: AN Kazakhskoy SSR. Izvestiya. Seriya fiziko-matematicheskikh nauk, no. 1, 1964, 83-87

TOPIC TAGS: nucleon scattering, antinucleon, scattering cross section, diagram technique, angular distribution, pion, resonon

ABSTRACT: This is a continuation of a preceding paper by one of the authors in the same issue (Golyak, p. 83 -- Accession Nr. AP4049259) and is devoted to a clarification of the discrepancy between the theoretical and observed angular distributions in proton antiproton scattering. Instead of considering pole processes in which the intermediate line is a pion, as in the first paper, the authors assume that the intermediate line is a resonant pion system (resonon) in

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ACCESSION NR: AP4049260

different spin (J), mass (M), parity (P), isospin (T), and generalized parity (G) states. The calculations were made for three variants of I and P, namely 1^+ , 1^- , and 0^+ , corresponding to direct, pseudovector, and scalar coupling, respectively. The total and angular differential cross sections are calculated in the three versions, for resonon masses 370, 530, 830, and 1600 MeV and for T = 0 and 1. Comparison with the experimental results is difficult because of the large experimental error. The experimentally observed forward peak in the distribution is apparently due to the large contribution of exchange of a scalar resonon with M = 370 MeV. "The authors thank Zh. S. Takibayev for several critical remarks." Orig. art. has: 8 figures and 6 formulas.

ASSOCIATION: None

SUBMITTED: 10Feb63

SUB CODE: NP

NR REF SOV: 004

ENCL: 00

OTHER: 001

Card 2/2

RUS'KIN, Valeriy Ivanovich; USIK, P.A., kand. fiz.-matem. nauk,
otv. red.; KOVALEVA, I.F., red.

[Isotopic spin; isospin analysis of strong interactions]
Izotopicheskiy spin; izospinovyiy analiz sil'nykh vzaimo-
deistviy. Alma-Ata, Izd-vo AN Kaz.SSR, 1964. 83 p.
(MIRA 17:9)

Kus'K, no. 4. V

/ Determination of structure of tertiary acetylenic alcohols and γ -acetylenic glycols. II. Determination of structure of acetylenic alcohols, γ -glycols, and diacetylenic glycols by the method of ozonization and by the spectrographic route. A. I. Lebedeva, T. A. Mishina, and R. P. Rozina. J. Gen. Chem. U.S.S.R. 23, 799-804 (1953) (Engl. translation). See C.A. 48, 4425t. H. L. H. 1

RUSKIS, P.V.

Advanced methods of operation of mine-sinking crews. Khim.
prom. no.2:148 F '62. (MIRA 15:2)

1. Rudnik im. S.M. Kirova kombinata "Apatit".
(Mining engineering)

RUS'KO, Yu. A., Cand of Geol-Min Sci -- (diss) "Mineralological investigations of Jurassic clay formations of the northwest corner of the Donbass and the adjacent areas of the Dnepr-Don river mouths." (Kiev, 1957, 17 pp (Kiev State University im T. G. Shevchenko), 100 copies (KL, 34-57, 89)

CHERNOBYL'SKAYA, M.N.; RUS'KO, A.N.; VERBSKAYA, A.Ya.

Effect of ash elements on the development of acetone-butyl bacteria.
Nauk.zap.Kiev.un.12 no.7:27-35 '53. (MIRA 9:10)
(Clostridium acetobutylicum)

RUS'KO, A. N.

5391. Rus'ko, A. N. Parkticheskiye raboty i uprazhneniya po obshchey khimii. (Ucheb. posobiye dlya vyssh. ucheb. zavedeniy Ukr. SSR) Pod red. Yu. K. Delimarskogo. Kiyev, "Rad. shkola", 1954. 264 s. s ill. 23 sm. 5 ekz. 6r. 70 k. V. per.---Na ukr. yaz. (55-659) 54 (076.5)

SO: Knizhnaya Letopis', Vol. 1, 1955

CHERNOBYL'SKAYA, M. N., RUS'KO, A. N.

Acetone-Butyl

Acetone-butyl fermentation in the treatment of rye flour with ergot impurity.
Nauk. zap. Kyiv. un. 9 no. 7, '50.

9. Monthly List of Russian Accessions, Library of Congress, July 1953, Uncl.
2

ASTAKHOV, O.; RUS'KO, O.

[General chemistry] Zahal'na khimiia. Zatverdzheno iak pidruchnyk
dlia pryrodnychyykh fakul'tetiv pedahohichnykh instytutiv. Kyiv,
Radians'ka shkola, 1958. (MIRA 14:8)
(Chemistry)

Rus'ko, Yu. O.

10
Associations of clay minerals in the Jurassic deposits in the Northwestern borders of the Donets Basin and adjacent regions of the Dnieper-Donets depression. Yu. O. Rus'ko (State Univ., Kiev). *Dopovidi Akad. Nauk Ukr. R.S.R.* 1957, No. 3, 308-8 (Russian summary, 308-9).—In the continental clays of this region kaolinite (I) is predominant, illite (II) and hydromuscovite are present, halloysite is rare. In the maritime clays II is the predominant mineral, I being present in lesser amounts. The II is converted in part into montmorillonite. A weakly alk. environment and recovery conditions may be considered a distinctive feature for the area of sedimentation and diagenesis. Werner Jacobson — 3

88

~~RUS'KO, Yu.O.~~

Mineralogy of lower Jurassic clays from the Nikolayevsk, Ray-
Aleksandrovskiy, and Nikiforovskiy deposits. Geol. zhur. 17 no.1:
73-79 '57. (MLRA 10:4)
(Ukraine--Clay)

RUS'KO, Yu.A.

Finely dispersed chamosite from clayey rocks of the Aalenian in out-
lying northwestern regions of the Donets Basin. Vop.min.osad.obr.
5:224-230 ' 58. (MIRA 12:3)

(Donets Basin--Chamosite)

RUS'KO, Yu.O.

Mineralogy of Bajocian clay formations in the northwestern
margins of the Donets Basin and adjacent parts of the
Dnieper-Donets Lowland. Trudy Inst.geol.nauk AN URSR.
Ser.petr.,min. ta geokhim. no.6:185-195 '60. (MIRA 15:12)
(Donets Basin--Clay)
(Dnieper Donets Lowland--Clay)

RUS'KO, Yu.A. [Rus'ko, IU.O.]; IVANOV, Yu.K.

Using methyl methacrylate for preparations of microscopic
analysis. Geol. zhur. 20 no. 5:97-98 '60. (MIRA 14:1)
(Methacrylic acid) (Microscopy)

RUS'KO, Yu.A.

Nature of monothermite; mineralogical composition of Chasov Yar
clay. Min. sbor. no.15:239-254 '61. (MIRA 15:6)

1. Institut geologicheskikh nauk AN USSR, Kiyev.
(Chasov Yar Region---Clay)

RUS'KO, Yu.A. [Rus'ko, IU.O.]

Effect of dehydration of the morphology of halloysite. Geol. zhur.
21 no.3:57-60 '61. (MIRA 14:7)

1. Institut geologicheskikh nauk AN USSR.
(Halloysite)

RUS'KO, Yu.A.

Dependence of the morphology of montmorillonite on the mode
of preparation in electron microscopy. Zap. Ukr. otd. Min.
ob-va [no.1]:60-66 '62. (MIRA 16:8)

1. Institut geologicheskikh nauk AN UkrSSR, otdel litologii,
Kiyev.

RUS'KO, Yu.A.

Some problems of identification and experimental techniques in the
X-ray analysis of clay minerals. Rent.min.syr. no.1:24-38 '62.
(MIRA 16:3)

1. Institut geologicheskikh nauk AN UkrSSR.
(Clay---Analysis) {Crystallography)

RUS'KO, Yu.O.

Kaolin. [Pratsi] Inst. geol. nauk AN URSR. Ser. geol. rod.
kor. kop. no.1:140-149 '63.

(MIRA 18:6)

RUS'KO, Yu.O.

Titanium self-shaded pseudoreplicas for electron microscopy studies of finely-disseminated minerals. Geol.zhur. 23 no.1:94-97 '63.
(MIRA 16:4)

1. Institut geologicheskikh nauk AN Ukr-SSR.
(Titanium--Metallography)

RUS'KO, Yu.A.

Morphology of nontronite. Zap. Vses. min. ob-va 93 no.1:89-92
'64 (MIRA 13:2)

1. Institut geologicheskikh nauk AN UkrSSR, Kiyev.

RUSKULIS, S. A.

USSR /Chemical Technology. Chemical Products
and Their Application

I-12

Silicates. Glass. Ceramics. Binders.

Abs Jour: Referat Zhur - Khimiya, No 9, 1957, 31582

Author : Ruskulis S.A.

Title : Elimination of Soiling of Articles by Improvement
of Quality of Saggers

Orig Pub: Sb.: Kapseli i karkasnyye ogneupornyye detali, -
primenyayemye v keram. prom-sti. M., Promstroy-
izdat, 1956, 7-11.

Abstract: Description of work carried out at the Riga plant
of porcelain and faience, on improvement of the
quality of chamotte saggers, for slip firing, by
means of better preparation of paste, better

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USSR /Chemical Technology. Chemical Products
and Their Application

I-12

Silicates. Glass. Ceramics. Binders.

Abs Jour: Referat Zhur - Khimiya, No 9, 1957, 31582

shaping of saggers and their processing prior to placing the articles into them. After a preliminary firing at 800 the saggers are subjected to "bomzing", i.e., a trimming on the molding machine, using a paste of (in % by weight): Chasov-Yarskaya clay 10, Prosyantovskiy kaolin 25, sand 20, chamotte of less than 0.5 mm, 45. After bomzing the inside surfaces of the saggers are coated with a glaze (% by weight): porcelain paste 50 and porcelain-glaze 50. Edges of glazed saggers are then covered with a paste (% by weight): kaolin 33, sand 67. Experiments have been carried out on incorporation into the chamotte paste, in lieu of a portion of the chamotte, of 17% porcelain body of

Card 2/3

USSR /Chemical Technology. Chemical Products
and Their Application

I-12

Silicates. Glass. Ceramics. Binders.

Abs Jour: Referat Zhur - Khimiya, No 9, 1957, 31582

3-2 mm grain; it was noted that this increases the life of the saggars. As a result of the work carried out at the plant the reusability of saggars increased by 3.6 times in 1952, and by 4.6 times in 1954.

Card 3/3

RUSKOL, A A

N/5
723.11
.R9

Dogover M T S s kolkhozami (Agreements of machine tractor stations with collective farms) Moskva, Akademkniga, 1951.

50 p.

At head of T - P: Akademiya Nauk SSSR. Institut Prava. Naucno-popylarnaya serya.

Bibliographical f8otnotes.

RUSKOL, A. A.

F/5
722.101
.K22

Kolkhoznoye pravo (Kolkhoz law) Pod. red. N. D. Kazantsev, I. V. Pavlov
i A. A. Ruskol. Moskva, Gosyurizdat, 1955.

383 p.

Bibliographical footnotes.

RUSKCL, Aleksandr Abramovich

N/5
722.101
.R95

OSNOVY SOVETSKOGO KOLKHOZNOGO PRAVA (BASIC SOVIET KOLKHOZ REGULATIONS)
MOSKVA, TSK KPSS, 1956. 55 p. AT HEAD OF TITLE: KOMMUNISTICHESKAYA PARTIYA
SOVETSKOGO SOYUZA. VYSSHAYA PARTIYNAYA SHKOLA. BIBLIOGRAPHICAL FOOTNOTES.

RUSKOL, Aleksandr Abramovich; SALISHCHEVA, Nadezhda Georgiyevna; SHISHOV,
O.F., redaktor; KOSAREVA, Ye.N., tekhnicheskij redaktor

[The legal status of machine-tractor stations and the character of
their contractual relations with collective farms] Pravovoe
polozhenie mashinno-traktornoj stantsii i kharakter ee dogovornykh
otnoshenii s kolkhozami. Moskva, Gos. izd-vo iurid. lit-ry, 1956.
150 p. (MIRA 9:10)

(Machine-tractor stations)

RUSKOL, D.Ye. (Kaliningrad).

Proof of two lemmas on broken lines in Kiselev's textbook. Mat. v
shkole no.5:41-42 S-0 '58. (MIRA 11:10)
(Geometry, Plane)

RUSKOL, D.Ye., kand.fiziko-matematicheskikh nauk

Determining a surface by giving its 2nd and 3rd quadratic forms.
Uch. zap. Kalin. gos ped. inst. no.5:3-10 '58. (MIRA 13:10)
(Surfaces, Generalized)

RUSKOL, D., ^{Ye.} kand. fiziko-matematicheskikh nauk

Determination of a surface by its first tensor and mean curvature.
Uch. zap. Kalin. gos. ped. inst. no.5:118-124 '58. (MIRA 13:10)
(Surfaces) (Calculus of tensors)

RUSKOL, D.^{Ye}, kand.fiziko-matematicheskikh nauk

Determination of a surface only by the absolute invariants. Uch.
zpa. Kalin. gos. ped. inst. no.5:125-128 '58. (MIRA 13:10)
(Surfaces) (Invariants)

RUSKOL, D.Ye.

Determination of a surface in three-dimensional Euclidean space
with the aid of the metric tensor and mean curvature. Trudy
Sem.po vekt.i tenz.anal. no.12:355-364 '63. (MIRA 16:6)
(Surfaces, Representation of)

RUSKOL, D. Ye.

RUSKOL, D. Ye. -- "Tensors Determining the Surface in Three-Dimensional Euclidean Space." Sub 7 Apr 52, Moscow State Pedagogical Inst imeni V. I. Lenin. (Dissertation for the Degree of Candidate in Physicomathematical Sciences).

SO: Vechernaya Moskva January-December 1952

L 30959-66 EWP(m)/EWT(d)/EWT(1)/EWT(m)/T IJP(c) WW/JW/JWD/WE
 ACC NR: AP6013192 SOURCE CODE: UR/0421/66/000/002/0010/0018 57
 AUTHOR: Ruskol, V. A. (Moscow) 56
 ORG: none B
 TITLE: Self-modelling solution of laminar boundary layer equations in
 the presence of a flame front 16
 SOURCE: AN SSSR. Izvestiya. Mekhanika zhidkosti i gaza, no. 2, 1966,
 10-18 2/
 TOPIC TAGS: combustion, supersonic combustion, hydrogen combustion,
 boundary layer
 ABSTRACT: The effect of the combustion process 113 on heat and mass trans-
 fer and friction were analyzed for the case where oxygen flows over a
 porous plate and a mixture of hydrogen with water vapor is injected
 through the plate into the boundary layer. Combustion was assumed to
 take place in an infinitely thin combustion zone. The distance of the
 flame front from the wall was plotted as a function of the injection
 rate, temperature, and Mach number (up to M 4). In addition, the con-
 centration and temperature profiles were plotted as functions of the
 injection rate. An interesting result was that when the flame front
 detaches from the plate, the friction, heat, and mass transfer 11
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L 30959-66

ACC NR: AP6013192

coefficients decrease sharply. The experimental data could be correlated by universal relationships only at small injection rates. At high injection rates, such a correlation was not possible and the friction and heat and mass transfer did not depend on the Mach number in the outer stream. Moreover, at high injection rates, friction also did not depend on the temperature factor. This is explained by the fact that the maximum temperature is close to that of a stoichiometric mixture at high injection rates and is therefore almost independent of the wall temperature. The heat and mass transfer and friction were also calculated for the case where only the hydrogen is injected through the plate and the water vapor and oxygen flow outside. The author thanks V. S. Avduyevskiy, who directed the study. Orig. art. has: 6 figures and 30 formulas. [PV]

SUB CODE: 21/ SUBM DATE: 03Aug65/ ORIG REF: 006/ OTH REF: 003
 ATD PRESS: 4240

Card 2/2. CC

RUSKOL, Ye.L., kand. fiziko-matem.nauk

History of the Earth-Moon system. Zem.i vsei 1 no.5:2-10
S-O '65. (MIRA 18:11)

L 8113-66 EWT(1)/FCC/EWA(d) GW.
ACC NR: AP5028629

SOURCE CODE: UR/0030/65/000/010/0129/0130

AUTHOR: Rusko1, Ye. L. (Candidate of physico-mathematical sciences)

ORG: none

TITLE: Sessions of the astronomical council

SOURCE: AN SSSR. Vestnik, no. 10, 1965, 129-130

TOPIC TAGS: astrophysics, cosmogony, astronomic conference, planetary environment, atmospheric optic phenomenon, earth rotation, cosmic dust, earth planet, mars planet, venus planet, moon

ABSTRACT: A conference on planetary cosmogony and physics, organized by the Astronomical Council of the Academy of Sciences USSR, was held in Moscow, 20-22 July 1965. N. B. Divari, V. V. Radziyevsky, B. A. Tverskoy, and V. G. Fesenkov, reporting on the general problem of the near-Earth dust cloud, discussed data on zodiacal light and twilight brightness obtained by rocket and ground investigations. It was believed that the near-Earth cloud might be supplied by the capture of interplanetary particles by means of light pressure. In order to resolve major outstanding problems of the dust cloud, it was proposed that investigations of the zodiacal light be carried out from satellites and that special photometric observations be made at diametrically opposed points on the globe.

Curd 1/3

L 8113-66

ACC NR: AP5028629

V. I. Moroz, S. V. Kozlovskaya, N. M. Strakhov, and I. Ya. Baronov analyzed new data on the surface and atmosphere of Mars and Venus as well as theoretical models of their internal structure. The occurrence of limonite and subterranean ice on the Earth's surface was examined in connection with the evolution of the Martian surface.

V. Yu. Levin, O. I. Ornatskaya, Ya. I. Al'ber, and Ye. A. Lyubimova reported on computations of the thermal histories of the Earth, Mars, and the Moon, based on data on the abundance of radioactive elements in the Earth and in meteorites, the thermal flux through the Earth's surface, the thermal flux of the Moon as derived from radioastronomical observations, and the behavior of matter at high pressures. A. A. Yavnel' reviewed concepts on the conditions surrounding the development of meteorites in a preplanetary cloud, while V. S. Safronov surveyed modern views of the nature and evolution of the preplanetary cloud and Earth-type planets.

V. Yu. Levin, V. N. Zharkov, and Ye. L. Ruskol discussed new data on the nature of the lunar surface and interior that might be obtained by geophysical means during future lunar expeditions. Some possible lunar seismic experiments were studied. The results of new computations of the tidal evolution of the Earth-Moon system were also reviewed.

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L 8113-66

ACC NR: AP5028629

From 8 to 10 June 1965, the Commission on the Study of the Rotation of the Earth met in Riga. Substantial increases in the accuracy of time determinations in the USSR in recent years have made it possible to define fine effects in the rotation of the Earth. On the basis of the results of several time services, T. K. Nikol'skaya^{44,55} and L. A. Solovyeva^{44,55} (Leningrad) have detected a lunar tidal wave in their determinations of precise time.^{12,55} It was unanimously agreed by discussants that the wave was a function of the elastic properties of the Earth's crust at the place of observation. N. N. Pavlov^{44,55} (Pulkovo) has confirmed the theory of continental drift on the basis of astronomical observations. He emphasizes the importance of the effect of wind blowing on mountainous areas of the Earth on continental drift. K. A. Shteyns^{44,55} and E. Ya. Kaupusha^{44,55} (Riga), in a report on the transfer of the angular momentum from the atmosphere to the Earth and back, described a method they developed which, in principle, confirms Pavlov's hypothesis. D. Yu. Belotserkovskiy^{44,55} (Moscow) reported on irregularities in the rotation of the Earth observed in astronomical studies. These findings are now used in standard time determination in the USSR and represent the first practical use of the results of astronomical investigations of the Earth's rotation by means of atomic and molecular frequency standards. [ATD Press: 4133-F]

SUB CODE: 03,08 / SUBM DATE: none

Card 3/3

RUSKOL, YE. ~~41~~

B. R. Ruskol

On the Subject Relating To The State and The Special Orientation
of the Dark Religion

Am. ~~Journal~~ Journal, Academy of Sci, USSR, Moscow
Vol. 27, No. 6, November-December 1990, pp. 341-351

Trans: Monthly Blat of Russian Associations
December 1991, Vol. 3, No. 9, P. 28

RUSKOL, Ye.L. (Reviewer)

"The dust cloud hypothesis" [in English] (in Scientific American,
p.35-45, May 1948). F. Whipple. Reviewed by E.L. Ruskol. Vop. kosm.
1:275-276 '52. (MLRA 7:2)

(Cosmogony) (Whipple, Fred Lawrence, 1906-)

RUSKOL, Ye. L.

Meteorology

Dissertation: "The Condensation of Interstellar Gaseous Dust Clouds." Cand Phys-Math
Sci, Geophysics Inst, Department of Physicomathematical Sciences, Acad Sci USSR, Oct-Dec
1953. (Vestnik Akademii Nauk Moscow, Mar 54)

SO: SUM 213, 20 Sep 1954

RUSKOL, Ye.L.

"Form and orientation in space of the dark nebulae"; author's
abstract. Vop.kosm. 2:326 '54; (MIRA 8:5)
(Nebulae)

RUSKOL, Ye. L.

USSR/ Astronomy - Clouds in interstellar space

Card 1/1 Pub. 8 - 1/13

Authors : Ruskol, Ye. L.

Title : ~~Physical processes in a dense gas-dust cloud which cause the cloud to contract~~
Physical processes in a dense gas-dust cloud which cause the cloud to contract

Periodical : Astron zhur., 32/1. 3-15. Jan-Feb 1955

Abstract : Physical processes that would create conditions under which dense gas dust clouds would shrink are discussed. It is shown that only nonelastic impacts of gas atoms and dust particles can lead to a contraction of the cloud. An equation of the energy balance of dust particles is derived, from which it is possible to calculate the temperature of particles. It was concluded that in the process of contraction the cloud passes through a transparent stage. Twenty-seven references: 13 USSR, 11 USA and 3 German (1934-1954). Graphs; tables.

Institution : The Academy of Scs., USSR, The Geophysical Institute

Submitted : April 28, 1954

RUSKOL, Ye. L.

Contraction of a gaseous dust cloud as the result of inelastic collisions between its particles. Astron. zhur. 32 no. 3:244-254
My-Je '55. (MIRA 8:8)

1. Geofizicheskiy institut Akademii nauk SSSR.
(Interstellar matter)

SOV / 124-58-5-5548

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 5, p 88 (USSR)

AUTHORS: Safronov, V.S., Ruskol, Ye. L.

TITLE: On a Turbulence Hypothesis in a Protoplanetary Cloud (O gipoteze turbulentnosti v protoplanetnom oblake)

PERIODICAL: V sb.: Vopr. kosmogonii. Vol 5. Moscow, AN SSSR, 1957, pp 22-46

ABSTRACT: In paragraph 1 the stability of a laminar rotational motion in a protoplanetary cloud relative to convection is investigated. A corresponding stability condition is deduced which in the case of moderate temperatures (heat velocities smaller than peripheral velocities) is reduced to the well-known convective-instability criterion

$$|dT/dn| > \gamma g/a_2 R$$

where a_2 is a constant of the order of unity and g is the gravitational acceleration. This condition is known not to be fulfilled in a protoplanetary cloud as a result of which the erroneousness of Weizsäcker's cosmogonic hypothesis is deduced. If incipient

Card 1/2

SOV / 124-58-5-5548

On a Turbulence Hypothesis in a Protoplanetary Cloud

turbulence were present in a protoplanetary cloud, it would subside quickly. In paragraph 2 it is demonstrated that in a rotating turbulent protoplanetary cloud the tangential stresses depend on the gradient of the moment of the quantity of motion and not on the angular-velocity gradient as assumed by Weizsäcker, who had uncritically adapted the results obtained for the case of laminar motion to that of turbulent motion. It follows from the above that there is a tendency towards retention of the substance in the central part of the cloud and not a division of the substance into the outer portions moving away from the sun and the inner portions gravitating toward the sun, as was assumed by Weizsäcker. Paragraph 3 examines the process of the growth of the nuclei in the protoplanetary cloud. The growth of the nuclei does not prevent them from settling in the equatorial plane nor does it inhibit the increase in density to the critical point in the sense of gravitational instability. However, for this it is necessary for the relative velocities of the particles to be very small (of the order of 1 cm/sec in the vicinity of the Earth and 100 cm/sec in the vicinity of large planets). Bibliography: 19 references.

S. L. Kaplan

1. Interstellar matter--Turbulence
2. Turbulence--Theory
3. Particles--Theory

Card 2/2

RUSKOL, Ye. L.,

"Some Remarks on the Protoplanet Formation,"

presented at the 13th General Assembly of the IAU, Moscow, Aug 1978.

RUSKOL, Ye. L.

Voprosy kosmogonii, t. 6 (Problems in Cosmogony, Vol. 6) Moscow, Izd-vo AN SSSR, 1958. 367 p. 2,000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Astronomicheskii sovet.

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RUSKOL, Ye. L.

Conference of the Committee of Cosmogony on the development of
extragalactic astronomy and cosmology. Vop.kosm. 6:359-360 '58.
(MIRA 11:10)

(Cosmology)

RUSKOL, Ye. L.

Concerning the Origin of the Moon.

report presented at the International Symposium on the moon, held at the Pulkovo Observatory, Leningrad, USSR, 6-8 Dec 1960.

RUSKOL, Ye. L.

O. Schmidt Institute of Physics of the Earth, Moscow.

"On The Origin Of The Moon."

paper presented at IAU Symposium on the Moon, Leningrad, USSR, 6-8 Dec. 60.

It is shown that a pre-lunar swarm of small solid bodies should have formed around the Earth growing up by gradual accumulation. This was due to inelastic collisions of small bodies in the vicinity of the Earth. The Earth could acquire a swarm with total mass of 0.1 - 0.01 Earth mass, necessary for the Moon's formation, if the representative size of bodies was 10 - 100 km and the mean probability of capture after one collision was of the order of 0.01. The probability of capture was maximal (round 1/3) near the Earth and decreased to zero at the outer border of the swarm; ie., at 200 Earth's radii. In result of this the calculated density distribution within the swarm shows a strong concentration towards the Earth. Therefore most probably the Moon was formed at the distance of 5 - 10 Earth's radii.

RUSKOL, Ye.L.

Problems of the origin of protoplanets. Vop.kosm. 7:8-14 '60.
(MIRA 13:11)

1. Institut fiziki Zemli imeni O.Yu.Shmidta, Akademii nauk SSSR.
(Cosmogony) (Solar system)

S/033/60/037/04/007/012
E032/E314

AUTHOR: Ruskol, Ye.L.

TITLE: On the Origin of the [✓]Moon. I. Formation of a
Pre-satellite Swarm of Bodies Around the Growing Earth

PERIODICAL: Astronomicheskii zhurnal, 1960, Vol. 37, No. 4,
pp 690 - 702

TEXT: Various hypotheses concerned with the origin of the Moon are briefly discussed. The work of Radziyevskiy and Razbitnaya (Refs. 9 and 10) is discussed in greater detail. The latter is based on present theories of the accumulation of planets and satellites from smaller solid bodies. Both these workers were concerned with the restricted problem of three bodies (Sun, Earth, small particle) and assumed that the capture of pre-satellite bodies by the Earth was due to an increase in its mass and the resulting expansion of zero-velocity envelopes. It is shown that this capture mechanism could not have been effective in the formation of the Moon. A different capture mechanism is proposed, namely, non-elastic collisions of particles and bodies in the neighbourhood of the growing Earth. It is shown that a swarm of bodies with a total mass of $(0.01 - 0.1)m_{\oplus}$ could have

Card 1/2 ✓

S/033/60/037/004/007/012

E032/E314

On the Origin of the Moon. I. Formation of a Pre-satellite
Swarm of Bodies Around the Growing Earth

been formed around the Earth during its accumulation. The size of the colliding bodies should have been 10 - 100 km if the mean capture probability per collision was of the order of 0.01. The dimensions of the swarm should be of the order of 100 Earth radii, and the density should increase strongly towards the Earth. The rotation of such swarms should be in the same direction as the rotation of the protoplanetary cloud. It is suggested that this collisional scheme can be used in the study of the origin of other satellite systems, e.g. the Trojans. Acknowledgments are expressed to Professor V.V. Radziyevskiy and Doctor of Physicomathematical Sciences B.Yu. Levin for detailed discussion of the present work. There are 1 figure and 18 references: 5 English, 1 international and 12 Soviet.

ASSOCIATION: Institut fiziki Zemli Akademii nauk SSSR
(Institute of Physics of the Earth of the
Ac.Sc., USSR)

SUBMITTED: February 9, 1960
Card 2/2

SLY SHA, V.I.[translator]; BAGARYATSKIY, B.A., red.; RUSKOL, Ye.L.,
red.; PANTAYEVA, V.A., red.; DZHATUTEVAM F, Kh., tekhn. red.

[Experimental investigation of space near the earth] Eksperi-
mental'noe issledovanie okolozemnogo kosmicheskogo prostran-
stva. Moskva, Izd-vo inostr. lit-ry, 1961. 277 p.
Translated from the English. (MIRA 15:4)
(Solar system)

21741

S/025/61/000/006/003/007
D244/D305

3,1550 (3105, 1057, 1062, 1129)

AUTHORS: Levin, B. Yu., Doctor of Physico-Mathematical Sciences,
and Ruskol, Ye. L., Candidate of Physico-Mathematical
Sciences

TITLE: Stranger from space - on the hypothesis of N. Bonev

PERIODICAL: Nauka i zhizn', no. 6, 1961, 9

TEXT: In the third issue of "Nauka i zhizn'" for 1961 there
was a short account of a hypothesis by astronomer N. Bonev on
the origin of the moon. The authors state that this hypothesis
is groundless. N. Bonev suggests that initially the moon was not
an earth satellite but an independent planet which was braked by
powerful volcanic eruptions on passing the earth and then went
into orbit around it. It is supposed that these eruptions acted
on the moon like the motor of a braking-rocket. For the braking
effect to be adequate, N. Bonev has to assume that these volcanic
eruptions were so strong that the moon lost much of its original
mass. The possibility of a planet having great internal energy

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S/025/61/000/006/003/007
D244/D305

Stranger from space - ...

is strengthened by reference to the hypothetical planet Phayton, whose explosion is alleged to have given birth to asteroids and meteorites. One of the main reasons, however, for the rejection of this particular hypothesis by astronomers is the fact that they have failed to find the source of energy for such an explosion. In order to leave the moon, matter must have flown out of the volcanoes at a colossal speed (3 - 5 km/sec). One has to completely exclude the possibility of there existing in the moon at that time sufficient reserves of energy for the ejection of most of its original mass. In order to obtain a reaction effect while ejecting matter to one side, the volcanoes must have been operating not over the whole lunar surface but only in a comparatively small area. The authors point out that in Bonev's diagram the explosion is depicted in a direction which is the reverse of that necessary for capture by the earth. Furthermore, such a volcanic "rocket-brake" would have been applied just when it was

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S/025/61/000/006/003/007
D244/D305

Stranger from space - ...

flying past the earth; it must have acted the whole time in the necessary direction and must have worked very accurately to bring the moon into a circular orbit. It is clear that such a set-up is completely artificial, state the authors. [Abstracter's note: This is essentially a complete translation].

Card 3/3

RUSKOL, Ye. L.; SAFRONOV, V.S.

Origin of rapidly rotating asteroids. Astron.zhur. 38 no.2:273-
277 May-Apr '61. (MIRA 14:4)

1. Institut fiziki Zemli AN SSSR.
(Planets, Minor)

S/555/62/008/000/002/003
I023/I242

AUTHORS: Levin, B. Yu., and Ruskol, Ye. L.
TITLE: Review of present data on the moon
SOURCE: Akademiya nauk SSSR. Voprosy. Kosmogonii. v.8.
Moscow, 1962, 109-144

TEXT: The present review is based on Soviet and Western sources and covers the period up to 1962. The following topics are discussed: 1) orbital motion, rotation, and libration; 2) atmosphere; 3) photometric data; 4) radio location data; 5) surface temperature; 6) structure of the surface layer (micro-relief); 7) surface relief; 8) origin, internal structure, and thermal history. There are 2 tables and 117 references. ✓

Card 1/1

SAFRONOV, V. S. and RUSKOL, E. L.

"The History of The Lunar Atmosphere and The Possibility of Presence
of the Ice and Organic Compounds on the Moon"

report presented at the 13th Intl. Astronautical Federation Congress (IAF)
Varna, Bulgaria, 23-29 Sep 1962

RUSKOL, Ye.L.

Conference on extragalactic astronomy and cosmology. Vop.kosm.
8:216-217 '62. (MIRA 15:7)
(Astronomy--Congresses) (Cosmology--Congresses)

43990
S/560/82/000/012/013/014
1063/1263

3.2000
3.2442
AUTHOR:

Ruskol, Ya.L.

TITLE:

On the origin of condensation of interplanetary dust around the earth

SOURCE:

Akademiya nauk SSSR. Iskusstvennyye sputniki Zemli, no. 12
Moscow, 1962, 145-150

TEXT: A condensation of interplanetary dust around the earth was suggested by measurements of meteoric collisions carried out on American and Soviet rockets. The external condensation region enclosed between distances of 500-100,000 km from the earth's surface contains 90% of the whole dust material, whereas the rest of the mass is contained in the internal condensation region which is enclosed between heights of 100-500 km. The author gives a quantitative theoretical description of two mechanisms, able to explain the condensation within the external region. He assumes that the material within this region is supplied from particles of the zodiacal cloud. These particles approach the earth in hyperbolic paths. On

Card 1/3

APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001446120016-6

S/560/62/000/012/013/014
I063/I263

On the origin of condensation...

reach the denser layers of the atmosphere. A different way of capturing particles within a thin layer of the higher atmosphere (500-1000 km) may be possible through the loss of kinetic energy as a result of the retarding effect of the atmosphere. The mass of the captured particles is $1.4 \cdot 10^6$ g year⁻¹. Thus, if we disregard other factors, this mechanism could have induced the accumulation of the whole dust material within the external condensation region during a period of 10^3 - 10^4 years. X

The most important English language references are:
F.L. Whipple, Nature, 189, 127, 1961
D.C. King-Hale, Nature, 184, 1267, 1959.

SUBMITTED: July 20, 1961

Card 3/3

SAFRONOV, V.S., RUSKOL, YE.L.

Atmosphere of the Moon.

Reports of the following Soviet Scientists were presented at the
XIIIth International Congress on Astronautics in Varna, Bulgaria,

P:Tekhnika Molodezhi, #1, 1963, pp. 24-25

RUSKOL, Ye. I.

Tidal evolution of the Earth-Moon system. Izv. AN SSSR. Ser. geofiz.
no. 2:216-222 F '63. (MIRA 16:3)

1. Institut fiziki Zemli AN SSSR.
(Tides)

ACCESSION NR: AT4019694

S/2555/63/009/000/0203/0214

AUTHOR: Safronov, V. S.; Baskel, Ye.L.

TITLE: History of the lunar atmosphere and the possibility of existence of ice and organic compounds on the moon

SOURCE: AN SSSR. Astronomicheskii sovet. Voprosy* kosmogenii (Problems of cosmogony), v. 9, 1963, 203-214

TOPIC TAGS: astronomy, moon, lunar atmosphere, lunar ice, lunar radioactivity, lunar interior, lunar surface, lunar evolution, lunar crater

ABSTRACT: The maximum density and probable composition of the ancient lunar atmosphere are considered. It is assumed that the moon was formed as a cold solid body, with a relative abundance of volatile substances similar to that of the earth. The total quantity of released volatiles is placed at 100 kg H₂O, 5 kg CO₂ and 0.23 kg N₂ per square centimeter of the lunar surface. On the basis of data on the thermal history of the moon, heated by radioactive elements, it is postulated that the period of intense degassing of its interior coincided with the period of its melting (about $2.5-3 \cdot 10^9$ years ago) and lasted about 10^9 years. During the accumulation of the atmosphere its escape rate increased and when the degassing attenuated atmospheric density decreased to its present value. The

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ACCESSION NR: AT4019694

maximum density near the surface is determined from the equality of the escaping flux to the flux from the interior during the period of active degassing and is found to equal 10^{-8} to 10^{-9} of that of the present-day terrestrial atmosphere. This corresponds to a density at heights of about 150 km above the earth's surface. The most abundant components of the lunar atmosphere, H_2O and CO_2 , therefore were dissociated mainly into O and CO . Liquid water probably never existed on the lunar surface because the density of water vapor was always much lower than saturation density. The presence of methane in the lunar atmosphere probably was impossible because methane is unstable in the presence of free oxygen. The authors disagree with the conclusions drawn by Watson, Murray and Brown that permanently shaded craters in the polar regions or "cold traps" were of great importance in the process of redistribution and conservation of H_2O on the moon or on their role as indicators of ancient activity of the lunar interior. The volume of these "traps" would permit lunar retention of not more than 10^{-3} of the total amount of released water. The suggestions made by C. Sagan also must be revised. Sagan concluded that certain complex organic compounds of the amino acid type can exist in the lunar soil in considerable quantity. His statement is based on the assumption that in the past the moon had a very dense atmosphere containing methane, ammonia and other gases in which organic synthesis was possible. The rarefaction of the lunar atmosphere, the predominance of photodissociation

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Card

ACCESSION NR: AT4019694

ciation processes over synthesis processes and the absence of the necessary mixture of gases were in fact unfavorable for the formation of complex organic substances on the moon. "The author thanks Doctor of Physical and Mathematical Sciences B. Yu. Levin for useful discussion of this paper". Orig. art. has: 9 formulas and 1 table.

ASSOCIATION: Astronemicheskiy sovet AN SSSR (Astronomical Council)

SUBMITTED: 28Aug62

DATE ACQ: 12Mar64

ENCL: 00

SUB CODE: AS

NO REF SOV: 003

OTHER: 010

Card 3/3

RUSKOL, Ye.L.

Conference on the problem of the origin of life in the universe.
Vop. kosm. 9:263-264 '63. (MIRA 17:5)

S/033/63/040/002/012/021
E001/E120

AUTHOR: Ruskol, Ye.L.

TITLE: On the origin of the Moon. II. The growth of the Moon
in a circum-terrestrial swarm of satellites

PERIODICAL: Astronomicheskii zhurnal, v.40, no.2, 1963, 288-296

TEXT: This is a continuation of a paper published in the same journal, v.37, 1960, 690, in which it was shown that the growth of the Earth by the accumulation of small solid bodies must have been accompanied by the formation of a swarm of small satellites, as a result of inelastic collisions between these solid bodies. This substantiated the concept of the formation of the Moon from the same material as the Earth. Moreover, evidence is presented favoring the similarity of composition of both these bodies. The opposite viewpoint advocated by H.C. Urey is criticized and arguments are adduced against his hypothesis of the capture of the Moon in a "ready-made" form. Various versions of capture are considered, including hypotheses by V.V. Radziyevskiy and Ye.P. Razbitnaya, and N. Boneff, and it is shown that the probability of such a capture is less than 10^{-2} by several orders
Card 1/4

On the origin of the Moon. II. ...

S/033/63/040/002/012/021
E001/E120

of magnitude. The mass of the swarm of satellites should have been 0.1 - 0.01 of the Earth's mass, if the effective size of colliding bodies was 10 - 100 km. Assuming distribution of their dimensions to have followed the law $dN(a) \sim a^{-n} da$ and the rate of the growth of the Earth's radius by the formula of V.S. Safronov (Dokl. AN SSSR, v.105, 1956, 1184), the author derives an equation for the dependence of matter density at a given distance from the Earth on its radius. The density distribution is shown in Fig.1. It is concluded that the growth of the swarm should have proceeded most rapidly when the Earth's mass was 0.3 - 0.5 of its present mass, and the formation of the Moon was probably begun at the same epoch. The rate of the Earth's growth was formerly much higher than at the end of its formation: 99% of the Earth's mass was accumulated in the course of only 100 - 200 million years. The difference in ages of the Moon and the Earth should not exceed 200 million years. The initial distance between them was about three Earth's radii, and the formation of the Moon was completed at a distance of 5 - 10 radii. At a greater distance from the Earth small asteroid type

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On the origin of the Moon. II. ...

S/033/63/040/002/012/021
E001/E120

satellites probably existed. Their falling onto the lunar surface when the Moon crossed their orbits during its recession, due to tidal friction in the Earth, caused the formation of some lunar maria, according to G.P. Kuiper. This explains the existence of only one Moon at present, whereas this number might have been higher in the previous history of the Earth. There are 2 figures.

ASSOCIATION: Institut fiziki Zemli Akademii nauk SSSR
(Institute of Physics of the Earth, AS USSR)

SUBMITTED: July 21, 1962

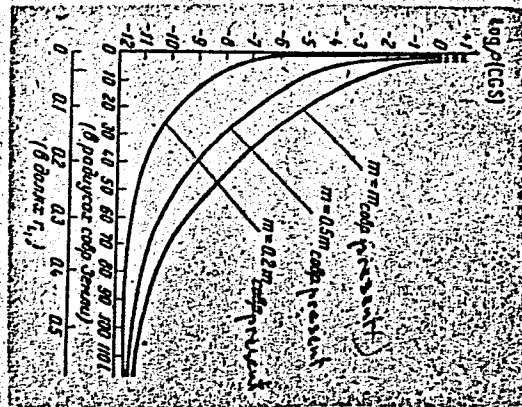
Fig.1. Abscissa is expressed in radii of the present Earth;
the second line in abscissa reads (in fractions of r_{L_1}).

Card 3/4

On the origin of the Moon. II.

S/033/63/040/002/012/021
E001/E120

Fig. 1. Distribution of density in the circumterrestrial swarm with respect to the distance from the Earth for various stages of its growth. $a_{ef} = 10$ km; $m_0 = 0.1 m_{present}$.



Card 4/4

RUSKOL, Ye. L.

"The origin of the moon."

report submitted for 5th Intl Space Science Symp, Florence, 12-16 May 64.

Shmidt Inst of Geophysics, AS USSR.

YERPYLEV, N.P., kand. fiz.-matem. nauk; KILADZE, R.I., kand. fiz.-
matem. nauk; RUSKOL, Ye.L., kand. fiz.-matem. nauk;
KULIKOVSKIY, P.G., kand. fiz.-matem. nauk

Plenums of the Astronomical Council and its committees. Vest.
AN SSSR 34 no.5:134-137 My '64. (MIRA 17:6)

L 11344-67 EWT(1) GW

ACC NR: AP6028796

SOURCE CODE: UR/0033/66/043/004/0829/0836

AUTHOR: Ruskol, Ye. L.

23

ORG: Institute of Physics of the Earth, Academy of Sciences, SSSR (In-t fiziki Zemli Akademii nauk SSSR)

TITLE: Tidal history and origin of the Earth-Moon system ¹²

SOURCE: Astronomicheskii zhurnal, v. 43, no. 4, 1966, 829-836

TOPIC TAGS: lunar orbit, regular orbit, planetary equatorial plane, ~~orbital line~~, tidal energy, *PLANETARY ORBIT*

ABSTRACT: The results of recent computations of the evolution of the Moon's orbit due to tidal friction in the interiors of the Earth and Moon are discussed. The shape of the lunar orbit in the past may indicate the way in which the Earth-Moon system was formed. The initial eccentricity of the lunar orbit was probably smaller than at present, if the dissipation of tidal energy in the lunar interior was below a definite limit. The quantitative relations are illustrated in the form of graphs. The character of the lunar orbit in the past is evidence in favor of the formation of the Moon in the Earth's vicinity. Orig. art. has: 5 figures and 2 formulas.

SUB CODE: 03/ SUBM DATE: 11Jan66/ ORIG REF: 010/ OTH REF: 015

Card 1/1 *lm*

UDC: 526.62

L 11970-66 EWT(1) GN

ACC NR: AP6000666

SOURCE CODE: UR/0384/65/000/005/0002/0010

AUTHOR: ⁵⁵ Ruskol, Ye. L. (Candidate of physico-mathematical sciences)

ORG: none

TITLE: History of the earth-moon system

SOURCE: Zemlya i Vselennaya, no. 5, 1965, 2-10

TOPIC TAGS: moon, earth planet, ocean tide, lunar orbit

ABSTRACT: The history of the earth-moon system is surveyed in connection with the current interest in the moon and its exploration in the near future. The two main hypotheses concerning the origin of the moon are discussed. The theory of tides is treated. The variations in the lunar orbit are traced and discussed, and the history of research in this area is touched upon. It is stated that there is more evidence to support the theory that the moon originated in the vicinity of the earth. Orig. art. has: 1 photograph, 2 diagrams, 2 graphs, and 1 table.

SUB CODE: 03/ SUBM DATE: none

Card 1/1 HW

RUSKOL, Ye. I.

Nature of the temperature inhomogeneities in the earth's interior.
Izv. AN SSSR. Fiz. zem. no. 4:1-8 '65.

(MIRA 18:8)

1. Institut fiziki Zemli AN SSSR.

Pandellia watsoniana, n. sp., R.M. [Cochran, E.], achter fiz.-
watan,atak

In the Astronomical Council; conferences in Moscow and Riga. Vest.
AN BSIIF 35 no.10:129-130 6:165. (MIRA 18:10)

L 62102-65 EWT(1)/ENG(v)/EEC(t) Pg=4/Pa=5/Pac=2 G1

ACCESSION NR: AP5015668

UR/0293/65/003/003/0395/0407
523.323.36(047)

AUTHOR: Ruskol, Ye. L.

TITLE: Physical properties of the lunar surface¹²

SOURCE: Kosmicheskiye issledovaniya, v. 3, no. 3, 1965, 395-407

TOPIC TAGS: lunar surface, radio echo, reflected radiation, dielectric property, space probe/ Ranger VII, Ranger VIII

ABSTRACT: The investigations of many authors concerning the physical properties of the lunar surface as brought to light in the last three years have been summarized. The data are obtained from the sources given in a lengthy list of references. Investigations have been made on reflection of light from different parts of the surface and the relation to phase angle, on the thermal flux in the infrared and radio-wave parts of the spectrum, echo of radio waves, and dielectric properties and density of the upper "shell" of the moon as determined by radio-astronomical and radar techniques. Segments of the lunar surface have been delineated because of different thermal properties. Laboratory studies have been made on finely ground dust to simulate conditions on the lunar surface.

Card 1/2

L 62102-65

ACCESSION NR: AP5015668

Attempts at deciphering the thermal history of the moon and the evolution of its atmosphere are directed at detection of possible volatile and organic compounds. Prints of the moon taken at close range by Ranger VII and Ranger VIII have provided resolution 1000 times more detailed than possible from photographs taken through telescopes on the earth.

ASSOCIATION: none

SUBMITTED: 31Jul64

ENCL: 00

SUB CODE: AA

NO REF SOV: 022

OTHER: 029

llc
Card 2/2

L 58790-65 EWT(1)/EWG(v) Po-4/Pq-5/Pq-4/Pg-4 GW

ACCESSION NR: AP5017037

UR/0387/65/000/004/0001/0008
550.367

AUTHOR: Ruskol, Ye. L.

TITLE: The nature of temperature inhomogeneities within the earth

SOURCE: AN SSSR. Izvestiya. Fizika zemli, no. 4, 1965, 1-8

TOPIC TAGS: gravity anomaly^γ, heat source, radioactivity, tide

ABSTRACT: Temperature inhomogeneities in the earth^γ are considered to be local deviations from spherical symmetry of temperature distribution. It has already been proposed in the literature that gravity anomalies on the earth's surface may be associated with such inhomogeneities. The present paper presents a discussion of possible causes of variation in the distribution of heat sources within the earth that may give rise to temperature inhomogeneities. Two sources are considered: radiogenic and dissipation of tidal energy. Consideration of the distribution of radioactive material and evaluation of the past thermal history of the earth indicate that if gravity anomalies are due to irregular distribution of heat sources, these inhomogeneities cannot be primary features, such as primary variations in radiogenic sources of heat, but must be associated with the evolution of the earth. Generation of heat within the earth as a consequence of tidal retardation of the

Cord 1/2

L 58790-65

ACCESSION NR: AP5017037

solid mass of the globe is examined from the viewpoint that dissipation of the tidal energy occurs only in a comparatively narrow layer in the upper part of the mantle, where diffusion viscosity is minimal. The inhomogeneous nature of such generation of heat within the layer itself may be the cause of horizontal temperature inhomogeneities, and these may be on a scale to correspond to observed gravity anomalies. Orig. art. has: 1 figure and 5 formulas.

ASSOCIATION: Akademiya nauk SSSR, Institut fiziki Zemli (Academy of Sciences SSSR, Institute of Physics of the Earth)

SUBMITTED: 12Mar64

ENCL: 00

SUB CODE: ES, ME

NO REF SOV: 009

OTHER: 001

Card 2/2 *dm*

L 42147-65 ENT(m)/ENT(t)/ETI IJP(c) D/75

ACC NR: AP6028579

SOURCE CODE: UR/0314/66/000/008/0028/0030

AUTHOR: Ruskol, Yu. S. (Engineer); Klinov, I. Ya. (Doctor of technical sciences)

ORG: none

TITLE: Crevice corrosion of titanium alloys in acids

SOURCE: Khimicheskoye i neftyanoye mashinostroyeniye, no. 8, 1966, 28-30

TOPIC TAGS: titanium alloy, hydrochloric acid, crevice corrosion, titanium alloy crevice corrosion, crevice corrosion rate / VT1 alloy, VT5 alloy, OT4 alloy, VT14 alloy

ABSTRACT: The resistance of VT1 titanium and VT5, OT4 and VT14 titanium alloys to crevice corrosion has been tested in hydrochloric and sulfuric acid solutions of various concentrations. It was found that the crevice corrosion rate depends upon the alloy composition, acid concentration, crevice width, and material of the crevice walls. In most cases, the rate of corrosion in a titanium-titanium crevice was higher than in a titanium-inert material crevice. The corrosion rate decreased with decreasing acid concentration. For instance, the rate of crevice corrosion in a VT14-alloy titanium-titanium crevice 0.3 mm wide was

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0.415 mm/year in a 1.75 N solution of sulfuric acid, 0.360 mm/year in a 1.25 N solution, 0.3 mm/year in a 0.75 N solution, and 0.22 mm/year in a 0.5 N solution. VT14 alloy is the most resistant to general corrosion while OT4 alloy is most resistant to crevice corrosion in sulfuric acid. With increasing crevice width, the rate of crevice corrosion usually decreases. At low acid concentrations, the corrosion rate is higher in narrow titanium-inert material than in titanium-titanium crevices. In both acids, corrosion mainly affects the entrance of the crevice rather than the bottom. This can be explained by a higher concentration of ions of tetravalent titanium at the crevice bottom than at its entrance. Generally, the rate of crevice corrosion was found to be one hundred times higher than that of the general corrosion, which varies in the alloys tested within 0.001—0.002 mm/year. Orig. art. has: 5 figures. [ND]

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